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## SOME QUESTIONS IN LATIN STEM FORMATION.

BY J. B. GREENOUGH.

THE science of Linguistics is really less than a century old, a very short time indeed even to gather and coördinate any considerable body of facts, much less to schematize and explain them. So the complexity of the facts and the great significance of some of the minutest of them often lead men to subtlety of reasoning on subjects which would really find their explanation in the most obvious phenomena. The development of words from simpler elements, technically called stem formation, is a case of this kind. If you take up almost any book on this subject you are sure to find the most ingenious theories invented to account for things that ought to suggest their own explanation if looked at from the fundamental points of view already established in the science. No question has been more ingeniously discussed than that of the origin of the Latin *gerund*. Dozens of far-fetched and fine-spun theories have been worked out to account for its form and use. Yet it seems that the great fundamental principles as they are already settled beyond controversy are sufficient to account for all the facts about this seemingly difficult question. Let us examine a few of these principles.

All agree that the Indo-European family of languages has developed its words by a process of stem formation in which significant elements, presumably verbal roots, have been enlarged and differentiated by the addition in sequence of other significant elements, mostly of pronominal origin, and that these combinations thus grown or made have been again and again subjected to the same process in a greater or less degree, but always following the same type according to the genius of the particular branch of the Indo-European family. The Northern European languages have generally short words, because this process of further formation was in some manner arrested early; the Southern European and the Asiatic languages of the stock have long ones, because the process was fostered and continued to a very great

extent. The process is well exemplified by the series *Ausones*, itself evidently formed by a familiar suffix, on (en) (*i.e.* aus + on) *Auruncus*, † *Aurunculus* (cf. *sermunculus*) *Aurunculeius* (cf. *Pompeius*). If this word had not been appropriated to an individual or family we might have gone on to † *Aurunculeitas* (cf. *Appietas*, actually made by Cicero) or † *Aurunculeare* and from that to † *Aurunculeatura* or farther still unless the word should break down under its own weight.

Another principle is that in this continued process two or more of the elements successively added become fused together so as to be regarded as a single suffix and used as such. For instance, in the series mentioned, *unculus* comes to be felt as an integral element and so is applied as a whole to words where the intervening steps do not appear and probably never existed. Thus we have *avunculus*, without any *avo* (-onis), or *avuncus*. By comparing several series of words, however, we can in almost all cases recognize the steps of the process.

These two principles of stem formation have been followed in the Latin language more, perhaps, than in any other, so that the Latin vocabulary is particularly rich in such long and highly developed words, whereby the shorter have been in great measure superseded.

Another principle is that words in the process of development tend to become specialized in particular meanings. In their origin adjectival in sense, *i.e.* expressing qualities either active or passive or sometimes both indifferently, they become participles, nouns of agency, names of instruments, or even, more exactly, names of persons, places, or of any idea that seeks expression in human speech.

A fourth principle, not so freely recognized, but to my mind equally certain, is that scientifically no derivative is strictly (*i.e.* originally) made either from a verb or noun as such. Derivation evidently goes far back of any such distinction as verb and noun. The elements used were neither verbs nor nouns, because they were both at once, and in this state of language the type of derivation was fixed. The later derivatives, consciously made, come from parts of words abstracted as stems and treated in the old manner just as if inflexion had never existed. Any form that seemed like a root or a stem could be conceived as a suitable element for further formation on the fixed pattern.

Thus the word *laudator* is not in a strict sense derived from *laudare*. The tor type must have become fixed long before there was

any verb or noun like *laus* or *laudo*. Such forms as *actor*, *genitor*, were early developed in the language and had become attached to *agere* and *gignere* as nouns of agency for those verbs. So on the same pattern were produced *laudator*, *auditor*, and the like. All this depends on the principle that composition and stem formation preceded in idea and type any inflexion or distinction of parts of speech whatsoever.

Our principles then are :

- First.* Stem formation by successive addition of suffixes.
- Second.* The fusing together of two or more of these suffixes so as to make a new available one.
- Third.* The specialization of the meanings of the words at any stage of their development.
- Fourth.* Derivation proceeds by stems and antedates inflexion and parts of speech.

In view of these principles, when we find the long words which are so characteristic of Latin, the natural presumption is that (apart from obvious composition) the words have been built up by continuous further formation by means of the living elements existing in the language, and unless some controlling reason appears to the contrary, this presumption is to be taken as true. As the suffixes are for the most part of pronominal origin we must, in analyzing a word, take off successively from the end the recognizable suffixes and discover the stems or the various steps through which the word has passed in its further formation.

Now it is noticeable in Latin that among the numerous derivatives there are a number of sets or series of words, in which each word has the same final letters with different letters in the body of the word, but with only slight differences in meaning. We have, for instance, *figura* (the only one of its kind) alongside of *pictura* (one of a large number). If we proceed by the method above indicated, we find in one case a root *fig* + stem-suffix *u* + stem-suffix *ra*, in the other *pig* + *tu* + *ra*. It seems obvious that we have here two differently formed stems continued by the same suffix *ra*.

In a pair of somewhat similar formation, *maturus* and *Matuta*, the same stem is continued by means of different suffixes. Compare this

†*matu-* with *mane*, and we see *ma + tu* and *ma + ne*. So we may conclude that the much-used *tura* is a compound suffix formed of *tu + ra* and is really the feminine of *tu + ro*.<sup>1</sup>

Again we have *rationalis*, *rationabilis*, and *ratiocinabiliter* (implying a †*ratiocinabilis*). We instantly recognize *ration + ā + lis*, *ration + a + bilis*, and *ratiocinā + bilis*. This process, which is a well-known one, ought to be carried still further, so that the ultimate analysis of the last form should be, on the same principle, *ra + ti + on + co + no + a* (representing the formative elements of a verb stem, treated, however, according to old patterns as a productive stem in conformity with the fourth principle above) + *bo + lis*. We notice in the process that *ra + ti* may be bracketed, as in *mens, mentis*; that *ti + on* may be bracketed, as in *mentio, mentionis*; that *co + no* may be bracketed, as in *lenocinium*; and that *bo + lis* are fused in the same manner. These again are often fused with *ā*, as we ultimately get the practical suffix in our *bearable*. So the steps are †*ratīs*, *ratio*, †*ratiocinūs*, *ratiocinor*, *ratiocinabilis* (as implied in the adverb). It is to be noticed that in any single word we can rarely be sure of the chronology, so as to know whether the fusion of the suffixes came before or after the formation of the particular word, but by comparison we may always be sure of the type, and may confidently by means of daggers give the typical intermediate steps. This to my mind is the only proper way of analyzing words so as to give certain conclusions. Let us apply it to less obvious cases.

Some most difficult series are those in

lis	bilis	—	tilis
ris	bris	cris	tris
lus (lum)	bulum	culum	—
rus	brum	crum	trum

As we see, the letters vary in the middle, but the last elements are the same. The words in each of these series have nearly the same meaning, and in view of the principles laid down we may assume on the face of the matter that the varying letters come from different stems, *i.e.* from the use of different suffixes at some stage of the pro-

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<sup>1</sup> The length of the *u* is only incidental, and need not be considered here.

gressive development of the words. They differ from each other just as the words

	<i>ferax</i>	<i>felix</i>	<i>ferox</i>	<i>fiducia</i>
or	<i>opacus</i>	<i>apricus</i>	—	<i>caducus</i>

which have the same *x* or *cus* ending, but are formed from different verb stems.

Let us see, then, whether we have any warrant for assuming the successive stems and the successive suffixes in these groups, as we found them in *Auso*, *Auruncus*, † *Aurunculus Aurunculeius*.

We take in the first series, say, *fragilis*, *nobilis*, *versatilis*. According to our first principle, these have been made by continuous further formation. As elements we have a root *frag*; we have a common suffix *o/a*. These have given us *fragus* (cf. *silvifragus*). We have also a suffix *li*. This gives *fragilis*, "breakable," a type which is well represented in the language (cf. *agilis*, *habilis*, *docilis*, *bibilis*). We may notice in passing that in accordance with our third principle the type has become specialized in the sense of passive capability, though no such sense seems inherent in the suffix. The words are adjectival in sense originally (cf. *herbilis* from *herba*). The type, however, has, as so often happens in Latin, been supplanted by other longer forms. Suppose we proceed in the same manner with the others. We have a stem *versato* (*versatus*), which seems to be treated exactly as the simpler form *fragus*. The result is naturally *versatilis*. This also remained as a type (cf. *coctilis*, *fissilis*, *flexilis*, *volatilis*), so that we finally have *fluviatilis*, "belonging to a river." The meaning of this last word is a clear indication that the original force of the compound ending *tilis* was an adjective one, not exactly defined in any one function, as it generally became later. The change in meaning may be illustrated by 'a catchy melody,' i.e. one easily caught. I can see no reason why we should not proceed in the same manner with *nobilis*. We have a root (or stem) *no*, as in *notus*. But here we haven't any † *nobus*. Still we do have *morbus*, *turba*, *manubiae* (implying a † *manubus*), *tubus* (cf. *tumeo*), *tribus* (*tres*), *dubo* (*are*), *dubium*, *addubanum*, and *herba* (whence *herbilis*). We have also many forms which, treated on the same principle, show a *b* element as a component part. Such are *ber*, *bris*, *bre*; *ber*, *bra*, *brum*; *bulus*, *-a*, *-um*; *bundus*,

-a, -um; and we may probably reckon *trabes*, *trabea*, and *plebes*. We shall also find the same phenomena in the other series hereafter to be discussed. Why may we not, then, assume a †*nobus* (like *morbus*, *herba*, †*manubus*) further formed by *lis*, as in fact *herbilis* is formed?

The second series has for example *celeris*, *mediocris*, *celebris*, *equestris*. For variety we may also give *alebris*, *anclabris*, *October*, *tuber*. Proceeding as before, we have a stem *cele* obviously akin to *cello*.<sup>1</sup> Added to this we have *ri* (a well-known suffix, like *li* in the first series) making *celeris* often, phonetically, *celer*.

In the second word we have a stem *medio* and the common suffix *ko/a*, which would make †*mediocus*. This form is fortunately proved by *medioximus*, especially *medioxume*, an odd superlative of *mediocriter* (*medioc* + *timus*, cf. *oxime*). To this we may confidently add *ri* (cf. *li* in the first series) making *mediocris*. For a parallel to †*mediocus* we may cite *alica*, "spelt" from *alo*.

In *alebris* we have a stem akin to *alo*, precisely as we have *cele* in *celebris* and *celeris* from *cello*. The natural presumption would be that this stem was further formed with a suffix (see first principle), just as we have *alica* with the *ka* formation. If *alicris* had happened to result we should have seen the connection at once. But the *bo/a* formation was so meagerly retained that we are driven to conjecture. Still we have all the forms mentioned before,—*morbus*, *turba*, *herba*, and the analogies of the other suffixes. Particularly we may compare *manubiae* by the side of *manubrium*. It is to be noticed that the force of these comparisons grows in geometrical proportion with every additional analogy. Why may we not suppose an †*aleba* (or *bus*), like *morbus* and *turba*? This is now ready for a further formation with *ri* again, giving the form *alebris*, as we have it. (We may here compare *alibilis*, its synonym that later supplanted it.) In this way *bris* becomes a suffix to be used as in *muliebris*, *anclabris*, *October*, all with a general adjective meaning, and *tuber* specialized as a noun. These show that there was no definitive idea attached as yet to the termination.

For the *tris* formation, as in *palustris*, *equestris*, we have no direct

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<sup>1</sup> The relation of this *e* to the *o* and *i* suffixes is not clear, but the interchange is a common one.

evidence except the frequency of the *ti*, *to*, *ta* suffixes, as well as that of the *ri* forms. All the Latin words in *tris* bear marks of imitation, as if formed by analogy, and all have an added *s*, evidently for an older *t*. This secondary character of these forms seems to point to an earlier Indo-European fusion of the elements into a new compound suffix, so that none of the existing forms are analyzable in such a manner as to show the intermediate steps. The frequency of the occurrence of these elements, however, points to the same process, only accomplished at an earlier period of the language. This view was held by Schleicher in regard to all this class of suffixes.

The third series is represented by *ago-lum*, "shepherd's staff" (cf. *coagulum*), *fibula* (or *lum*), *Rediculus*, *ridiculus*, *sediculum*, *sudiculum*. Of these *ago-lum* is surely *ag* + *o* (cf. *prodigus*) + *lo* (as in *agilis*). For *fibula*, *subula*, and the like, we can refer to the *bo* formations already mentioned, especially *turba* and its diminutive *turbula*. Notice particularly *turbulentus*, in which no diminutive force is apparent. We may compare also *tubus*, *tubulus*, *tubulatio*, which can hardly be separated from the root *tu* in *tumeo* and *tuber*.

For this formation it is customary to resort to the I.-E. suffix *dhlos* (in Gr. *θλος*) producing the Latin form *fiblus*, *-a*, *-um*, and the like. But the idea of the insertion of the *o* (*u*) to make *bulus*, etc., seems purely arbitrary. The forms are not found syncopated except rarely, and the whole doctrine depends on the supposed analogy of *culum*, *clum*, which we shall discuss presently. It is certain that the Latins had a *bo* suffix to work with in all these series. It seems much more natural, therefore, to suppose *bo* + *lo*, whether the *b* comes from I.-E. *dh* or not (for which see later, p. 13). But why in the case of an obviously compound suffix we should assume the syncopated form as the original, we can hardly see, except on the favorite principle that the *difficilior lectio* must be the right one.

For the *c* formation *culus*, *cula*, *culum*, as in *Rediculus*, *ridiculus*, *vehiculum*, etc., we have in the language the available suffixes *ko* and *lo*. So, then, it is difficult to see how *Rediculus*, the name of a divinity having a shrine at the spot where Hannibal was supposed to have "turned back" from the attack on Rome, can be separated in formation from other adjectives in *culus*, *-a*, *-um*. We may easily



imagine a † *redicus*, like *manducus*, *apricus*, *amicus*, or a † *redicus*, like *focus*, *Marcus*, *medicus*, *alica*, *vomica*. This, further formed by *lus*, would be like *tumulus*, *reiculus*. The greater part of the *lus* formations, to be sure, are diminutive, but there are also many adjectives and nouns of this sort not diminutive. And even if more were so, that would be inconclusive when we consider the diminutive tendency of common speech, going as far back as *φίλον ἥτορ*, and coming down to ‘take your little medicine,’ ‘go and eat your little dinner,’ in familiar slang. *Ridiculus*, again, must have been formed in the same manner, and we may compare *irridiculum*, “a laughing stock,” which has every appearance of a noun of means and yet can hardly be separated from *ridiculus*. *Sediculum* also falls in here, as well as *tendicula*, “a stretcher.” *Operculum* is surely not far off, and *vernaculus*, *Ianiculum*, and *Ocriculum* serve to show the adjectival character of the suffix.

The case is precisely the same with these words as if, having *iocus*, *ioculus*, we had, as has often happened, lost *iocus* entirely. We should then have to supply this word from the analogies of primary *ko* derivatives when we undertook to analyze *iocularis*. Now in the case of the *culum* words, we have with adjective meaning, either active or passive, *Rediculus*, *ridiculus*, *ioculus*, which must surely have been formed with *ko* + *lo*; we have an enormous number of *ko* and *c* formations with all sorts of meanings, chiefly agent, and we have pairs like *appendix* and *perpendicularum*, *pugnax* and *propugnaculum*, *vertex* and *deverticulum*, *tenax* and *tenaculum* (cited by Ter. Maurus), *retinacula* and also *tendicula*, “stretcher,” before mentioned.

As to the diminutive forms, they are unquestionably built up as we have stated, — *iuvenis*, *iuvencus*, † *iuvenculus*. But it is customary to distinguish the forms in *culus* regularly diminutive from those in *culum* (supposed *clum*). There seems, however, no reason to separate the two forms. It is to be remembered that a diminutive is only a specially used adjective form. The formation of “greasy” and “woolly” is the same as that of “Willy” and “baby.” A diminutive is regarded as not the thing itself but something like it, not a real “bear” but “bearish,” not “white” but “whitish.” We may also call attention to the tendency in rustic speech to substitute diminutives for regular names. See a very good discussion of this in Cooper,

*Word Formation in the Latin Sermo Plebeius*, Ginn & Company, 1895, p. 167. He particularly mentions tools and the like. Furthermore, the elements *ko*, *lo*, *yo*, and *on*, which are employed either alone or in various combinations for diminutives, are regular adjective terminations with a variety of meanings.

We may compare for the meanings of such adjectives *θήκη* (where the termination has almost an instrumental meaning), *raucus*, *paucus*, *caducus*, *bibax*, *ferox*, *averruncus*. See also above, *agolum*, *bibulus*. So also *socius*, *eximius*, *somnium*, and again *bibo* (*onís*), *gero*, *Strabo*, *Rufo*.

With all these indications it seems far better to accept the *culum*, *clum* formations as made by means of *ko* + *lo* rather than to hunt for any phonetic change from *t* to *c* in the suffix *tlom*, which is the ordinary method of explaining them. To seek any other explanation for these forms than the one I have followed certainly seems *nodum quaerere in scirpo*. Even those who have adopted this arbitrary fancy are forced to assume a confusion of the two modes of formation in the minds of the Romans, which is to my mind an utterly unnecessary and arbitrary assumption.

If we conclude that the *culum* group is thus formed, the presumption is increased that *bulum* is formed in the same manner. We have already seen the probability that *bilis* and *bris* could be so developed, and we have seen traces of sufficient *bo* formations to serve as a groundwork for the added *lus*.

It seems, therefore, the most natural supposition, and to my mind the only possible one, that all these forms are directly produced as adjective formations by added suffixes. Originally of all genders, they have had various fates. The neuters became specialized as instrumental nouns, in which use they might well be more subject to syncope, as seems to be the case, through a natural tendency to differentiation such as we have in "through" and "thorough." But they are by no means universally syncopated and, on the other hand, *vinculum* is also syncopated, though not a *clum* form at all, any more than *agolum*.

In the same category with the other series we may now put *rus*, *ra*, *rum*; *cer*, *cra*, *crum*; *ber*, *bra*, *brum*; *ter*, *tra*, *trum*. The *rus* suffix was early specialized in a passive sense, so that active or neuter adjectives

tives of this stamp are somewhat rare. But we have *ruber* (cf. *rudhiras*), *liber* (cf. *ἐλεύθερος*), *gnarus* (cf. *ignarus*). Still the derivatives cannot be cited as having the prevailing tendency to an instrumental meaning like that of *crum* and *brum*. But if we bear in mind the third principle, that of specialization at various stages of development, there is no difficulty, nor need there be in any case. Adjective forms exist throughout the series, though they tend to become partially specialized.

As to the *crum* formation, everything that has been said of *cris* will apply to this also. Furthermore, *ludicer* (perhaps *pulcer*) points to an adjective-ending not different, except in the stem vowel, from *mediocris*.

For the *ber*, *bra*, *brum* series we have *creber*, *faber*, *Mulciber*, *dolabra*, *terebra*, *cribrum*. *Cerebrum* may be added, as well as *tenebrae*. The usual derivation of these words by which they are supposed to come from † *ceresrum* and † *temesra* has always seemed to me forced to the last degree. One can easily suppose the loss of *s*, but how *sr* could generate *br* it seems impossible to imagine. Why not assume a compound suffix *be-ro* (*bo* + *ro*, perhaps syncopated early), making adjectives under the general tendency to enlarge words by successive further formations? Nor is there any reason why *latebra* should not be formed in the same manner.

In connection with this formation we may mention as parallels † *ludiber* (implied in *ludibrium*), *ludicer* (not found in the nominative masculine), *ludibundus*. All these seem sufficient to show the adjectival character of the forms, but the mode of development must depend upon the general principle as set forth under *bilis* and *bris*. We may add † *lucuber*, implied in *lucubro* (*are*), clearly with an adjectival sense.

The words in *trum* cannot be separated from an I.-E. type in the face of Sk. *aritrām*, *ἄροτρον*, *aratrum*, but such a word as *ιαρός* is sufficient to show the adjectival character of the formation and put it in the same category with the others. The only difference is that this compound suffix was fused earlier than some of the others (cf. Schleicher's view), and the specialization begun earlier. In other respects *tris* and *trum* do not differ from the rest of these forms.

So if we follow the analogy of *mediocris*, *alebris*, *alibilis*, etc., we

shall be almost forced to divide **crum** into **co+ro** and **brum** into **bo+ro**, so that the whole group of formations would be

Stem + li	+ bo + li	—————	+ to + li
“ + ri	+ bo + ri	+ co + ri	+ to + ri
“ + lus	+ bo + lo	+ co + lo	+ to + ro

No doubt the schematising tendency of the Latin mind tended to perpetuate this variety and regularity where they are not preserved in other languages, and the fondness for further formation tended in the same direction. But at any rate this extraordinary parallelism is too marked to be overlooked or explained away by far-fetched reasoning or possible phonetic changes. It seems impossible not to see in this parallelism the same processes at work which appear in

	<i>ferax</i>	<i>felix</i>	<i>ferox</i>	<i>fiducia</i>
and in	<i>opacus</i>	<i>apricus</i>	——	<i>caducus</i> .

Nor does it make any difference that Latin **b** corresponds to I.-E. **dh**, as I shall endeavor to show later.

This investigation has been conducted solely on Latin ground, as I think all such investigations should be until that ground has been fully explored. Yet no satisfactory conclusions can be reached without reckoning with Indo-European comparative grammar. In fact, it was not till linguistic science became comparative that any such investigations have been possible. But the comparison ought not to be applied until all the data of the particular language have been fully considered. It is the violation of this principle that has vitiated the usual doctrines in regard to these classes of words. Because, forsooth, some of these terminations were found to be Indo-European it was at once concluded that all must be. Hence the resort to **tlon** and **dhlon** with the necessary forced accommodation and ingenious phonetic devices. But the time to employ Indo-European comparison is after we have put in order the Latin facts. What we have thus far set down as natural inferences from the Latin seems to me unassailable. Now what further light does comparative etymology shed on the problems? First, the suffixes **tro/trā** as well as **tri** must be recognized as already existing in Indo-European. So also **tlō/tlā** and **dhlo/dhlā**. Moreover, Latin **b** in these formations must be held to correspond to I.-E. **dh**. Further than this there is nothing

conclusive. Are we to assume, then, at once that *trōm tri*, *tlōm dhlōm* must have been the only original suffixes and the only original forms of them at that? I confess that is a jump that I have never been able to make in spite of the gregarious habits of comparative philologists. For several years I have been in the habit of telling my pupils that the orthodox doctrine was so and so (especially in regard to the *tlōm clōm* fancy), and that they must hold it as a working hypothesis till it was disproved, but that I myself did not believe a word of it, and hoped that soon somebody would show its fallacy. In time, no doubt, the absurdity of the *tlōm clōm* doctrine will force itself upon somebody else and we shall then have an original *epochemachende* discovery.

Meantime, I wish in this paper to help bring about this desirable result. The real gist of the whole matter is that the *bo/ba* suffix, from whatever source derived, remained in Latin a living element of formation, used alone, as in *morbū*, *turbā*, *herbā*, *manubiae*, or combined with others, as in *ber* (*bris*), *ber* (*bri*), *bilis bundus*, and *bo* (*onis*). The same is true of *to/ta*, *ko/ka*, *ri*, *li*, and *on/en*. Hence we may be allowed to recognize these elements, simple or compound, in Latin etymology. If any other language distorted them or lost them, their non-appearance proves nothing; it is only an absence of evidence. *Tenebrae* by the side of *tamisra* only means a different suffix, just as we have *plenus*, *-pletus*, *plerique* side by side. So *terebrā* by the side of *τέρετρον*. So again, in Latin we have both *palpebra* and *palpetra*.

One of the most significant bits of testimony in regard to *bo/ba* lies in the words *longābo* (or *ābo*), *apexābo* (or *ābo*) preserved by Varro, "kinds of sausage," evidently so named from the skins in which they were made. These forms show clearly that they were produced by a free employment of a compound suffix, *bo*, *i.e.* *bo* + *on*, evidently in common use. Such words could not be made from *longus* and *apex* unless the suffix were a well-known one, like *lus* or *culus* or *tor*. Now compare this with *turbā*, *turbo*, in which the elements appear entirely distinct. One cannot escape the conclusion that there must have been many words with the *bo/ba* suffix, and others already further formed with *bo* (*onis*), in order to give rise to such analogical formations as *longabo* and *apexabo*.

Again, whatever origin we assign to the Latin *b*, and whatever became of the aspirate *dh*, it seems certain, in the light of the facts and inferences above given, that the Romans must have had, at some time in their development, a *bo/a* suffix to work with, and it seems impossible to doubt that they used it, as they did *ko/ka*, *ro/ri*, and *lo/li*, and all the rest of their inherited material, for their favorite further formation of adjective words, and that these words tended to become specialized in various meanings. This theory and this alone explains the remarkable parallelism in these forms.

To sum up this part of the discussion, it seems clear that in accordance with the principles laid down at the outset, all these parallel types of words have been formed by the successive addition of well-known simple suffixes to roots or stems; that the stems (or words) thus successively formed have remained in the language in sufficient numbers to be ready for further formation, and thus to give the type for new compound suffixes with more or less specialized meanings; that in course of time, and with the vicissitudes of language, some of the earlier types have been partially lost, though enough indications of them have been preserved, in one form or another, to justify the assurance of their previous existence; and that ultimately compound suffixes have arisen, specialized to a high degree in some cases, which remained as permanent agents in the development of the language. It is therefore unnecessary to hunt for correspondences in other languages, because the Latin forms, when rightly treated, explain themselves, so that the devices of *c* for *t*, confusion of really conscious formations with Indo-European phonetic variations, and all other linguistic mare's-nests, become superfluous and futile.

There is one other series that has been more discussed than any other on account of its supposed difficulties. But if it is considered in the light of what has been said, it seems absolutely simple, — the series (*ger*) *undus*, (*ludi*) *bundus*, (*rubi*) *cundus*. We may even add a *tundus*, as we shall see later, only this did not take root as a regular suffix.

Now if we follow the method we have suggested with these words, we shall analyze their forms thus: *ger* + *o* + *on* + *dus*, *lud* + *o* + *bo* + *on* + *dus*, *rub* + *o* + *co* + *on* + *dus*, *i.e.* *secus*, † *seco*, *secondus*; *ludus*, † *lux*.

*dibus*, † *ludibo*, *ludibondus*; *rubus*, † *rubicus* (cf. *rubico*), *Rubicon*, *rubicundus*. To these we may add *rotundus*, — *ro* + *ta* + *on* + *dus*, i.e. *ro-tundus*. Now if we compare these with the others, we can see the same parallelism.

<i>coagu-lum</i>	<i>fundi-bulum</i>	<i>oper-culum</i>	—
<i>agi-lis</i>	<i>ali-bilis</i>	—	<i>versa-tilis</i>
<i>ac-ris</i>	<i>ale-bris</i>	<i>medio-cris</i>	<i>illus-tris</i>
<i>gerun-dus</i>	<i>ludi-bundus</i>	<i>rubi-cundus</i>	<i>ro-tundus</i>

Let us see, then, what examples we have for the intermediate stages in this series. We have *morigerus*, *gero* (*onis*), “carrier,” and finally *gerundus*, the older form of the gerund. We have *morbus* (perhaps originally *moribus*) and *turba*. Then, though we have no † *morbo* (*onis*), yet we do have *turbo*, and all the forms implied by *longabo*, *apexabo*, and finally *moribundus*. We have *rubus*, and though no † *rubicus*, yet *rubico*, which implies its existence, *Rubicon*, *rubicundus*. These combinations, it seems to me, are impossible to assail, and we may consider this series completely analyzed so far as its form is concerned.

GER, <i>gerus</i>		<i>gero</i> ( <i>onis</i> )	<i>gerundus</i>
MOR, † <i>mori-</i>	† <i>moribus</i>	† <i>moribo</i> ( <i>onis</i> )	<i>moribundus</i>
	( <i>morior</i> )	( <i>turbo</i> )	
RUB, <i>rubus</i>	† <i>rubicus</i>	<i>Rubicon</i>	<i>rubicundus</i>
	<i>rubico</i> ( <i>are</i> )		
RO (?), <i>rota</i>		† <i>roto</i> ( <i>onis</i> )	<i>rotundus</i>

One objection might be made to this combination, namely, that we have *anfereno* in Umbrian, which could not phonetically come from *ferondus*, as *ferendus* might in Latin. This objection instantly disappears when we consider that the *on* suffix is precisely one of those in which the graded vowel or ablaut is most conspicuous. So *on*, *en*, and *n* (alone) are parallel forms which probably stood side by side when the type of this formation was fixed. At any rate, either was available for further formation, and probably both were taken in Latin, perhaps only *en* in Umbrian.

We have now only to account reasonably for the meaning and use of the gerund proper. For this purpose we must refer to our third principle, — the adjectival sense of these derived words. Fortu-

nately we have a few words of this sort which retain their earlier meaning, *i.e.* a meaning which would naturally result from the above combination, as *rota*, "a wheel," † *roto (onis)*, "rolling," *rotundus*, "round"; -*secus* (*pedisecus*), † *seco (onis)*, *secundus*, "following," "second," so *volvendus*, "rolling," and so *ante conditam condendamve urbem*. † *Calus/ā* (from which *calo -are*), *calo -onis*, "orderly," "soldier's servant" (cf. *calator*, same meaning), *Kalendae*, certainly with no gerundive signification; to these may be added *merenda*, "noon meal," and *turunda*, "a kind of cake," of uncertain development, but certainly not gerundives. So also *flammandi*, "being burned." The *bundus* and *cundus* forms remained adjective, but *bundus* approaches a participle in that it often takes an accusative. It is not at all surprising that these adjectives should have tended to become active while the gerund proper went the other way. We may compare the suffix *rus*, which yields both active and passive adjectives, and even *tus* is occasionally found active, as in *potus*, *pransus*, and so also *oletum*, "midden." Cf. also *tenuatur habendo*, "by wearing."

How, then, could the *undus endus* form become gerundive? The answer is: In the same manner that nouns become infinitives and supines, and adjectives become participles. A scheme of conjugation in its origin is not purposely made by grammarians, but certain forms are associated with the verb by use until they are habitually thought of as a part of it and then are gathered together by the learned and taught as formal grammar. So we may suppose a number of adjectives, probably neuter or passive, in sense like *rotundus*, *secundus*, *volvendus*, so used as to become attached, as nominal forms, to the verbs with which they are etymologically connected.

Then the genius of the language makes them a part of the verb and they follow its development, and one can be made from any verb without the intervening steps.

Following this the first conjugation would seem to require an *a* instead of an *e* and we have *amandus*, and so with the other forms *capiendus*, *audiendus*. The step in the meaning from a neuter, as *volvendus*, through, perhaps, *secundus* to *condendus*, a real passive, is an easy one. However the next step from present passive to necessity was made, we at any rate know that it was made, and a hint is given as to the manner by the use of the continued present for future in



many languages and especially in Latin. After this, from *will* to *shall* is a very short step. We may compare the use of the future for the imperative. The gerund has long been recognized as the impersonal use of the gerundive (I printed it in my grammar in 1872). Just as *bellum pugnatum est* gave rise to a *pugnatum est* in which the subject disappears as indefinite and not needing expression, a usage not different in principle from 'so it is said' in English, so from *urbis condendae* ("of a city being built") comes *condendi* ("of it being built") where the abstract idea of the action or 'suffering' stands in the same relation to the thought that the combined idea of the action and its object (or subject) has in the gerundive form. After a while this abstract action, expressed impersonally, takes a new object, as has happened in many cases in Latin and Greek (οὐχ) ἐκόντας ἀδικητέον (ἔστι), *agitandum est vigilias*. Such a transformation process serves to explain the curious construction of the gerundive with a genitive instead of an accusative, *eius* ("of her") *videndi*, *conservandi sui*, and the like. It is of the same kind as *metuens frigoris*, *metus frigoris*, along with *metuens frigus*. Only a transitive verb can take the true passive construction in agreement as in *conservandae urbis*. So while the impersonal gerundive is acquiring the power of governing an accusative it wavers between adjective and verb, so as to take a genitive like a noun or adjective, and this construction was preserved in a few combinations in Latin, though the main development went in another direction. Conversely this usage tends to confirm our explanation of the process of development.

It is worth while in passing to note, in connection with the development of the gerund, the curious tendency of the Latin to unite in one idea a noun and participle. This appears in the *post reges exactos* construction as well as in the gerund (cf. *ante conditam condendamve urbem*). It appears again in the *Caesar mortuus* combination used as subject. In the ablative absolute *Caesare mortuo*, the usage has given rise to an impersonal construction appearing as an adverb *consulto*, *auspicato*, and not differing much from *videndo* as used in its free occurrence as ablative of manner, whence comes the Italian present participle. The common construction *quid opus est facto* is still nearer the gerund in its essence, and must have been developed from usages like *hoc volo factum*, where the same union of noun and

participle is noticeable. The construction *aliquid locare faciendum* also shows this union, and very likely formed one of the steps towards the use of the gerund as a participle of necessity.

To conclude, it seems to me that a theory which agrees with all the facts in Latin and is not contradicted by comparative grammar must be the right one. It therefore seems certain that the gerundive with its family **bundus** and **cundus** has been developed in the same manner as the other series, namely, by successive further formations, resulting in a verbal adjective (active or passive), and that this adjective has been attached to the verb, first as a present passive participle which the Latin had lost, then becoming a future passive participle (?), and finally a participle of necessity, as in its use as nominative and accusative. That, further, the gerund (as is generally recognized) is nothing more than the impersonal of the gerundive taking a case according to the other uses of *ποιητέον* and *agitandum*.